Training in clinical microbiology in the UK

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In the UK, the second edition of the guide to specialist registrar training (Calman Report) was produced in 1998 to advise postgraduate deans, trainers, trainees and others about the arrangements for specialist registrar training in all the medical disciplines in the UK [1]. A useful companion publication should also be consulted by trainees and trainers [2]. The main change to the training prior to the Calman recommendations was to ensure that trainees had more protected and more structured training, particularly since the duration of their training would be more or less limited to 5 years in the higher specialist training period. This meant that the longer training period which earlier generations had experienced would be uncommon, although there are possibilities for variations in duration as a result of research and other 'out of program' opportunities. While it is the responsibility of postgraduate deans to ensure the delivery and compliance of training with predetermined standards, in the UK the setting of standards for training in the speciality of medical microbiology comes under the Royal College of Pathologists, and a booklet *Core Training Programme in Medical Microbiology and Virology* [3] was produced in 1998 and circulated to all regional advisers and trainees training in this speciality. Additional information to supplement the core training book is also provided as booklets [3]. Each of these provides the outline contents of the training programs in their respective specialities and also a log book for the recording of their participation in the various procedures as listed in the relevant booklet. The Core Training Programme in Medical Microbiology, which is currently being updated, is illustrated in Tables 1 and 2. These tables identify the variety of topics which the trainee should cover as far as possible within the training period. Towards the end of the third year, the trainee will normally sit the Part I examination for Membership of the Royal College of Pathologists (MRCPath), which consists of two written papers, and, if successful, the trainee is invited to undertake a practical examination of about $2\frac{1}{2}$ days, at the end of which is a viva. On successful completion of this examination, the trainee then undertakes training for another 2 years towards the Part II examination in which research and further training in clinical microbiology are expected to be undertaken (Table 3).

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Early in their training, the trainees, depending on their previous experience, are expected to become competent at bench techniques, but this is not seen as exclusive of other activities which should be undertaken later or, where possible, concurrently. The trainee is expected to participate, train and demonstrate competence in clinical liaison, infection control, clinical audit and other activities (Table 4). It is clear, therefore, that the trainee must undertake a comprehensive and searching training experience across the areas of bench microbiology, clinical management of patients, infection control, liaison with other

Table 1 Objectives of the core training programme In medical microbiology in the UK

Over a minimum 5-year period the trainee should acquire or develop:
Specialized factual knowledge
Interpretative skills
Technical skills
Research and development experience
The life-long habits of reading, literature searches, consultation with colleagues
Data management skills
Management and communication skills
Familiarity with all aspects of health and safety

Table 2 Core training programme in medical microbiology in the UK

Training for the Part 1 Examination of the MRCPath* in Medical Microbiology (years 1–3)
1. Scientific basis of medical microbiology
2. Laboratory safety
3. Sterilization and disinfection
4. Handling of specimens
5. Microscopy
6. Culture methods
7. Further processing of cultures
8. Antimicrobial investigations
9. Emerging technologies
10. Data handling
11. Clinical experience
12. Infection control in hospital/community
13. Virology
14. Quality control
15. Audit
16. Accreditation
17. Management

*MRCPath, Membership of the Royal College of Pathologists.

Table 3 Royal College of Pathologists approved training in microbiology in the UK

Bench microbiology	2.5–3 years
Clinical liaison	Leading to Part I MRCPath
Research year and	1.5–2 years leading to
further clinical microbiology	Part II MRCPath

MRCPath, Membership of the Royal College of Pathologists.

Table 4 College inspection of microbiology training in the UK

Bench microbiology	Information technology
Infection control	Molecular techniques
Clinical liaison	Clinical audit
Accreditation	Management
Internal quality control	Research
External quality assurance	Health and safety

clinical departments as well as pharmacy, occupational health, etc., and must also begin to understand the importance of and gain experience in certain management and budgetary discussions. There will be a need to be involved in reviewing or updating policies such as those pertaining to infection control, antibiotics, disinfection, isolation and handwashing, as well as major outbreak management. In addition, experience is essential in the investigation and management of clinical problems under supervision and with appropriate clinical support in those clinical specialities where a significant element of infection is always present (Table 5). The trainee is also expected to embark on a wide reading program, including prominent general medical weekly journals such as the *Lancet* and *British Medical Journal*, or monthly publications, as well as those journals in our own and related specialities. Encouragement to join at least one or two professional or scientific societies is always valuable, since trainees can join at a discounted rate and enjoy many of the benefits which are available to senior members of the profession. Advice on training is accessible through the educational supervisor, the trainer, the speciality advisor to the region and a number of college publications [4] and 'Model Training Programmes of the Association of Clinical Pathologists' [5,6].

How is the quality of training assessed? While this may be difficult, increasing experience indicates that many of the measures of formative and summative assessment as listed in Table 6 should provide at least an indication of the usefulness of the training undertaken. Ultimately, of course, what trainees feel about their training will be paramount and their views are sought confidentially through the Record of In Training Assessment (RITA) interview and also when the Royal College of Pathologists visits laboratories to review their recognition for training. On these occasions it is usual for the College to have two visitors, at least one in the relevant speciality, with the other one usually being the Director of Studies of the College. The visitors will have a completed application form from the head of department, providing a profile of the department and its work. The visit itself enables the visitors to assess the work of the department from a training point of view and to then identify points for discussion with the head of department and his or her colleagues and, in a separate private meeting, with the trainees. Subsequently, the report issued by the College will be considered by the Credentials Committee, which will decide whether to recommend to the Council of the College if the department's recognition for training should continue or not. The College visit is for educational purposes and is not currently designed to duplicate a Clinical Pathology Accreditation (CPA UK) inspection, although certain elements may be common. The College does, however, wish to see trainees being trained in CPA (or equivalent) approved laboratories, which ensures compliance with recognized standards of quality in service, Internal Quality Control (IQC), External Quality Assessment (EQA), safety, training, etc. To this end, consideration is being given to the feasibility of combining a College inspection of training as part of the CPA visit where this is relevant and appropriate. The Medical Biopathology section of the Union of European Medical Specialists (UEMS) is working towards the creation of a fellowship when training and inspection of laboratories on a European-wide basis will assume importance.

Table 5 Disciplines in which infection training forms a major component of the speciality

Microbiology	Pediatrics
Infectious diseases	Oncology
Epidemiology	Burns
Respiratory medicine	Transplantation medicine
Primary care group	Community medicine
Genitourinary medicine	Immunocompromised patients

A recent review of the research opportunities in medical microbiology, undertaken by the trainee representative on the College Microbiology Standing Advisory Committee (SAC), has indicated a somewhat patchy opportunity for trainees to undertake research in preparation for the completion of the Part II examination. Several points were identified in the report and

Table 6 Factors in the assessment of quality of training

RCPath* recognition of training	Examination performance
Record of in training assessment (RITA)	Publications
Postgraduate dean	Qualifications
College training programme and log book	Overseas training
Meetings, courses attended	Continuing professional development (CPD) for senior trainees and specialists

*RCPath, Royal College of Pathologists.

these have been accepted by the College SAC and also by the incoming Chairman of the Microbiology Examiners Panel.

We also need to review regularly whether the content and duration of training, in addition to the quality measures, are appropriate and relevant to the needs of patients through future generations of consultants. Changes in the biotechnology field affecting patient diagnosis and management, allied to other clinical medical changes, mean that the training must remain flexible and responsive to optimize patient care.

It has been evident to a number of colleagues in microbiology and infectious diseases that there is a significant core of common interest between the two specialities, such that a number of colleagues have looked at the opportunity for combining the training over a number of years. Recently, this has come to fruition in the production of the Joint Training Programme in Microbiology and Infectious Diseases. The impetus for this was through the Joint Committee between the Royal College of Pathologists and the Royal College of Physicians and the Statutory Training Authority, which has now approved dual accreditation through the training program in both these specialities [7]. It is clear that there are other specialities in which infection creates a common interest, and these include communicable disease control, genitourinary medicine, pediatrics, respiratory medicine, burns and oncology (Table 5). Joint training programs have been proposed or are being prepared in some of these areas as well.

While we are keen to establish training posts, especially in the area of microbiology and infectious diseases, we also have to be aware of the workforce requirements and opportunities for practicing in these areas in the future. Now that the approval of the Statutory Training Authority has been secured, published articles have since appeared to advise and encourage trainees of the value of such joint training [8,9]. We are taking this forward through the appropriate bodies to encourage the creation of posts in relevant locations where consultants can practice in microbiology and infectious disease, not unlike the current practice of consultant hematologists or consultant immunologists. We recognize that there are some unresolved issues, and while the majority of people entering into microbiology will continue to provide the major throughput in training and fill the conventional consultant medical microbiology posts, we hope that there will be a significant cadre of trainees who will take advantage of the new joint program.

We also have to be aware of the effect of the Statutory Workforce Advisory Group (SWAG), which has consequences for the number of training posts in microbiology in England and Wales, because of a request to reduce the number of medical microbiology trainees by 10 in the period 1998–99 and 16 in the period 1999–2000. Major factors influencing the number of trainees are the numbers of consultant medical microbiologists, frozen posts, new posts or vacancies created by retirements in that period. Further evidence of the number of doctors from other parts of the European Union coming into the UK and training in a variety of medical specialities means that England and Wales, as well as Scotland, have to be sensitive to training requirements and regulations. Colleagues from other European states can apply for consultant medical microbiology posts, providing they fulfill the requirements of their own country to be registered as a specialist. Therefore, the difficulties which the UK has experienced in satisfactorily equating the number of trainees in training to the number of consultants required are subject to a number of factors. These include the effect of relocation of trainees from Scotland and Ireland and other parts of the European Union, such that it might be an advantage to review the process by which the national number or pool of trainees is identified and adjusted.

Issues which the trainee will need to be conversant with from an early stage both now and increasingly in the future are clinical governance [10], revalidation [11], and National Institute for Clinical Excellence [12]. In addition, there is the need to be aware of the likely consequences of the 'Modernization of Pathology' and the European Union 'Working Hours Directive' [13] and how these will affect the staffing, workload and service of the microbiology department and consequently trainees and their training.

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